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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,771	10/16/2003	Martin Stelzle	WWELL78.006C1	9526

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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
07/11/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/688,771	STELZLE ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-20,31-36,47-50,64-71 and 80-84* is/are pending in the application.

4a) Of the above claim(s) *64-71* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-20,31,32,36,47-50 and 80-84* is/are rejected.

7)☒ Claim(s) *33-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed March 26, 2008 have been fully considered but they are not persuasive.

Rejections of claims 18, 19, 31, 32, 36, 47, and 49 under 35 U.S.C. 102(e) as being clearly anticipated by Yadav

Despite Figure 1 of Yadav clearly showing the nanopores extending from the top of the second electrode (16) through the insulation layer (10) and into the first electrode (14), Applicants assert, "Yadav does not disclose all of the elements of Claim 18." Applicants point to column 7, lines 1-44 wherein one sentence states, "A dense oxide barrier layer normally separates the bottom of the pores from the underlying aluminum substrate" as showing that in Yadav the surface of the first electrode is not at least partially uncovered by the nanopores. First, this oxide layer is part of the first electrode and does not necessarily fill the cavities in the electrodes shown in Figure 1, which are the bottoms of the nanopores. Moreover, independent claims 18, 31, and 47 do not require that the nanopores extend into the first electrode, only that the surface of the first electrode be at least partially uncovered by the nanopores. Second, Yadav

discloses that the electrodes may be made of a variety of other materials for which there is no suggestion that such an oxide layer will form. See column 5, lines 56-61. The discussion in column 7, lines 1-44 is for aluminum. Third, in the sentence immediately following the quoted sentence above, Yadav teaches that it is desirable not to have the oxide layer as avoiding this layer will improve sensor performance. Last, Applicants themselves acknowledge that Yadav discloses at least two methods for removing this oxide layer. In regard to the first method, Applicants argue that it only results in different size pores at the top and bottom surfaces, so–called "asymmetric" anodic alumina. However, none of Applicants' claims require a uniform diameter nanopore from the top surface to the bottom surface. In regard to the second method, although symmetrical nanopores are formed Applicants point out that Yadav states, "This cathodic polarization leads to a rapid electrochemical dissolution of the barrier layer, and separation of the anodic alumina substrate from the aluminum substrate." However, Example 10 in column 17 suggests that by applying the cathodic polarization for a very short time (3 to 10 seconds) and controlling the voltage (-50 to -200 V) separation of the alumina substrate from the aluminum substrate may be avoided, as a working sensor was obtained in this example.

Rejections of claims 18, 19, 31, 32, 36, 47, 49, and 50 under 35 U.S.C. 102(b) as being anticipated by Case

Applicants assert, "Case discusses a counter-electrode to measuring electrode 5, where the counter-electrode is a liquid." The Examiner respectfully disagrees. The counter-electrode (1) is a hydrophobic film that *contains* a liquid (buffer). "The layer may be stabilized by gelatin or the like." See column 7, lines 33-39. Applicants assert, "As shown in Figure 5 of Case neither the measuring electrode 5 nor the liquid counter-electrode have nanopores." The Examiner respectfully disagrees. The Examiner assumes that Applicants meant Figure 1 in Case instead of Figure 5 as Figure 5 is a graph of membrane current versus potential. Figure 1 clearly shows nanopores (9) that originate in the counter electrode (8) and extend through the insulation layer (4) to at least partially uncover the first electrode (5). That the pores shown in Figure 1 are nanopores is implied since, as noted in the rejections of claim 18, the number of pores per mm^2 membrane may be in the range of from about 50 to about 10^9 for gramicidin D.

Rejections of claims 18, 19, 31, and 47 under 35 U.S.C. 102(b) as being anticipated by Northrup

Applicants assert, "In Northrup, the negative electrode 73 is not described as having nanopores with an opening width selected from the range of approximately 20 nm to approximately 1000 nm. The pore size of the silicon is discussed in the discussion of Figures 7A, 7B, and 8, but the size of the holes in the negative electrode 73 is not discussed. In fact, discussion of Figures 4 and 5 may suggest that the holes in the electrode are in the range of 2 mm to 7 mm." The Examiner respectfully disagrees. The reference to "2 mm" in the discussion of Figures 4 and 5 is to holes made in a Teflon holder perpendicular to the fluid nanochannels in the silicon substrate, not holes in electrodes coaxial with the fluid nanochannels in the silicon substrate as shown in Figure 8. Additionally, these holes were apparently used for etching the silicon to create the nanopores. See column 6, lines 38-57. They do not seem to be part of the final device. It is noteworthy that in Figure 8 the number "72", which represents the nanopores has lines leading to the top of the topmost electrode (73), not to the silicon substrate (71). This, of course, implies that the nanopores have a uniform diameter from the top surface of the device to the bottom surface of the device.

For the reasons set forth above, all of the prior art rejections are maintained.

Status of the Rejections pending since the Office action of September 26, 2007

2. All of the rejections under 35 U.S.C. 102(b), 35 U.S.C. 102(e), and 35 U.S.C. 103(a) are maintained.

Allowable Subject Matter

3. Claims 33-35 are allowable for the reasons set forth in the Office action of September 26, 2007.

Final Rejection

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Alex Noguerola/
Primary Examiner, Art Unit 1795